# STATUS, DISTRIBUTION AND CONSERVATION OF THE TRAVANCORE TORTOISE, *INDOTESTUDO FORSTENII* IN WESTERN GHATS[1]

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(*With two plates and a text-figure*)

**Key words:** *Indotestudo forstenii*, Travancore tortoise, Western Ghats, endemic species, conservation

This paper reports the status and distribution of the Travancore tortoise, *Indotestudo forstenii* based on a field survey conducted in the Western Ghats of Karnataka, Kerala, and Tamil Nadu between 21 October and 30 December 1991. The survey identified strongholds of the Travancore tortoise and the several causes for its decline. The paper also describes tortoise habitat, morphometry, utilization by tribals and conservation problems.

## INTRODUCTION

*Indotestudo forstenii*, commonly known as the Travancore tortoise is distributed in the semievergreen and evergreen forests of the Western Ghats, India. Two populations of this species have been established, one in Western Ghats and the other in Sulawesi Islands, Indonesia (Moll 1989). However, the latter population is considered to have been introduced from India and hence, this species should be considered as endemic to India. Groombridge (1982) classified this chelonian as 'insufficiently known' in the Red Data Book (1982) of the International Union for Conservation of Nature and natural resources (IUCN). It is included in the second category of the Action plan rating of IUCN which implies that this species is little known and has restricted distribution (Stubbs 1989). Published information on Travancore tortoise's natural history is scanty and cover only a few aspects such as: distribution, general biology (Smith 1931, Daniel 1983, Moll 1989) and taxonomy (Hoogmoed and Crumly 1984). This paper deals with the distribution, status, habitat, exploitation by tribals and conservation problems of Travancore tortoise.

## METHODS

**Study area:** The study was carried out in the Western Ghats in the states of Karnataka, Tamil Nadu and Kerala from 21 October to 30 December 1991. Altogether, 11 protected areas were surveyed, namely three in Karnataka, four in Tamil Nadu and four in Kerala (Fig. 1). They are Neria Estate, Sharavati and Mookambika wildlife sanctuaries, in Karnataka; Mudumalai and Indira Gandhi (formerly Anaimalai) wildlife sanctuaries, Mundanthurai-Kalakad Tiger Reserve and Kothaiyar reserve forest in Tamil Nadu and Neyyar, Peppara Peechi-Vazhani and Parambikulam wildlife sanctuaries in Kerala.

Survey methods included searching in probable habitats and inquiring in tribal settlements and forest camps. The following measurements were taken using a dial vernier calipers: straight line carapace length (SCL), carapace width (CW), plastron length (PL) and shell height (SH). Live specimens were weighed (M) to the nearest gram using a spring balance. Also, information on forest type, micro habitat

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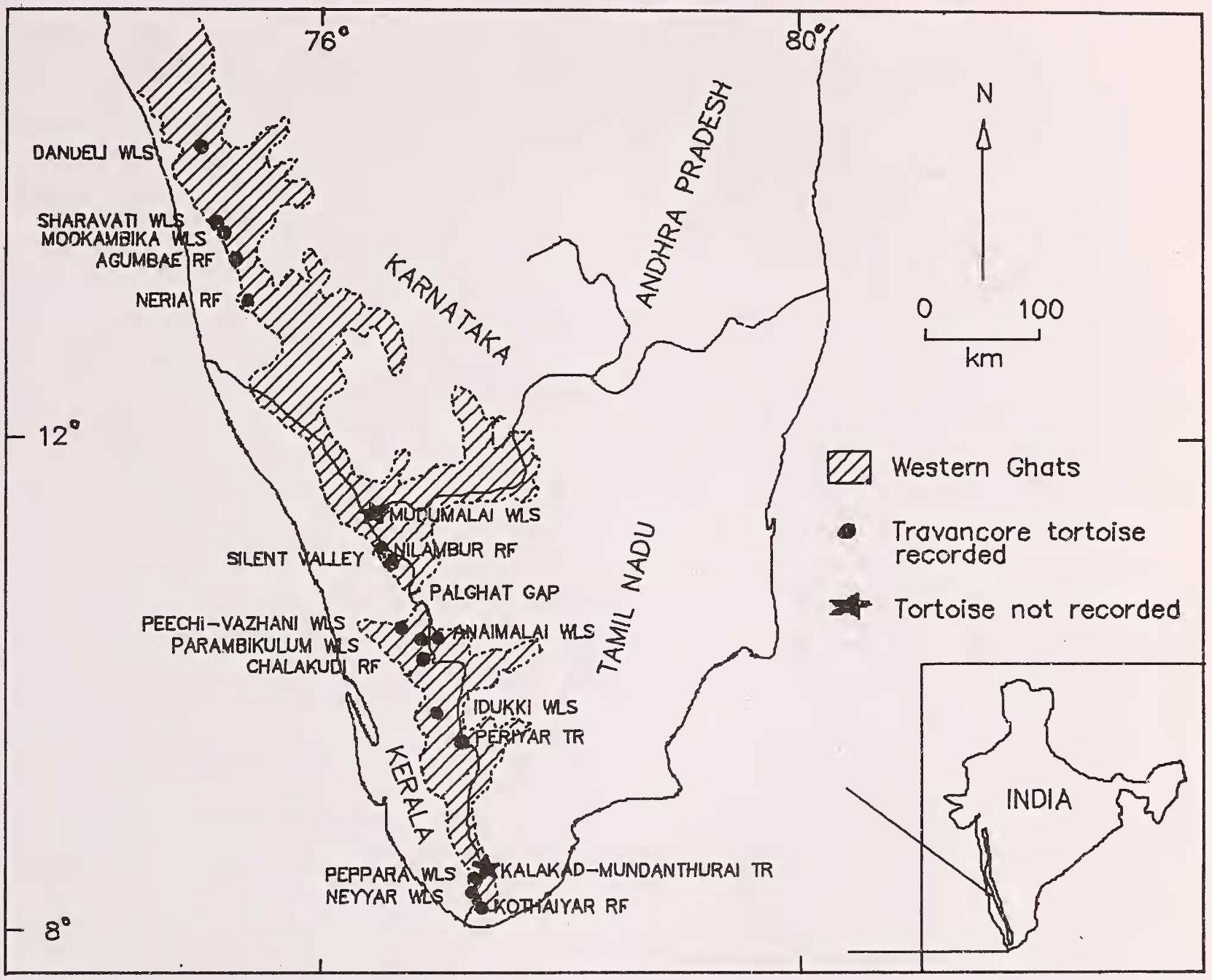



Fig. 1. Distribution of Travancore tortoise in the Western Ghats.

and elevation were noted.

## Results and Discussion

**Identity:** The overall coloration of the Travancore tortoise is yellow with one black blotch on each scute of the carapace (Plate 1a) and plastron. Hatchlings and juveniles are brown and devoid of black markings. Skin around the eyes and nostril become pink during breeding season (Auffenburg 1964). The closest relative of the Travancore tortoise is the Elongated tortoise, *Indotestudo elongata* which is distributed in the sal (*Shorea robusta*) forests of the north and northeast India. The Travancore tortoise differs from Elongated tortoise in lacking the cervical (nuchal) shield and length of the interpectoral seam. The length of the interpectoral seam is shorter than the interhumeral seam in Travancore tortoise (Smith 1931). However, the lack of cervical shield is not always true as one individual was recorded with cervical shield during the present survey. This tortoise grows up to 33.1 cm

TABLE 1
KNOWN LOCALITY RECORDS OF TRAVANCORE TORTOISE IN WESTERN GHATS, INDIA

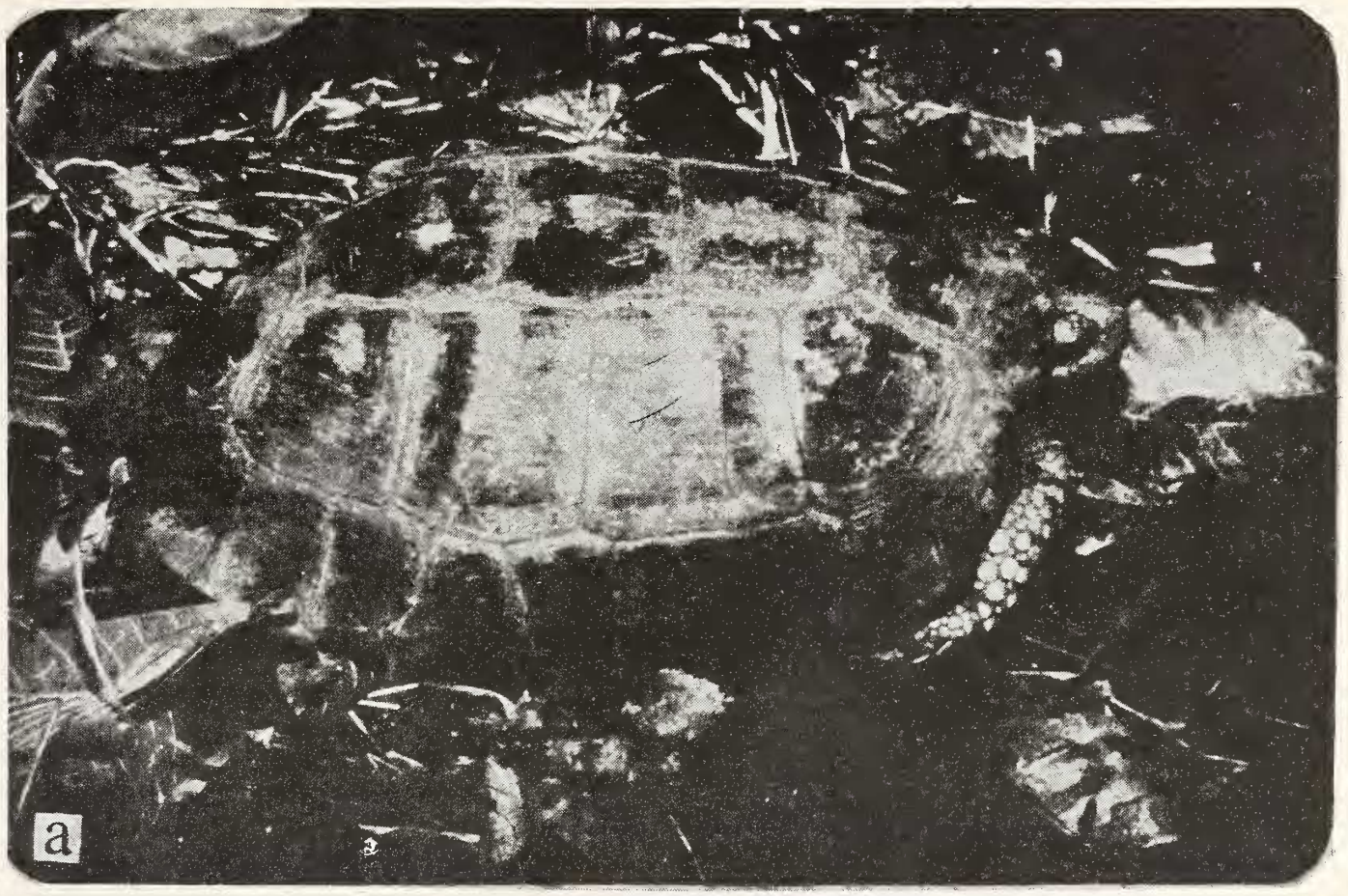
| State | Locality | Source |
|---|---|---|
| Kerala | Neyyar Wildlife Sanctuary | Present survey |
| | Peppara Wildlife Sanctuary | Present survey |
| | Peechi Wildlife Sanctuary | Present survey |
| | Parambikulam Wildlife Sanctuary | Present survey |
| | Periyar Tiger Reserve | KFRI, Museum, Peechi |
| | Chalakudi Forests | Moll (1989) |
| | Silent Valley Wildlife Sanctuary | Karunakaran (1992, per. comm.) |
| | Karualai Reserve Forest | Nitin D. Rai (1992, per. comm.) |
| | Idukki Wildlife Sanctuary | Moll (1989) |
| Tamil Nadu | Kothaiyar Reserve Forest | Present survey |
| | Indira Gandhi Wildlife Sanctuary | Present survey |
| Karnataka | Neria Forest | Sharath (1990) |
| | Sharavati Wildlife Sanctuary | B.K. Sharath (1991, per. comm.) |
| | Mookambika Wildlife Sanctuary | B.K. Sharath (1991, per. comm.) |
| | Agumbae Forest | Das (1991) |
| | Dandeli wildlife sanctuary | Renee Borges (1991, per. comm.) |

(Das 1991).

**Distribution:** Shells or live specimens of Travancore tortoise were recorded in six out of 11 localities surveyed (Fig. 1). They were, Neyyar, Peppara, Peechi-Vazhani and Parambikulam wildlife sanctuaries in Kerala and, Indira Gandhi wildlife sanctuary and Kothaiyar reserve forest in Tamil Nadu. Also, during the survey specimens collected from Neria forest, Sharavati and Mookambika wildlife sanctuaries in Karnataka by B.K. Sharath were examined.

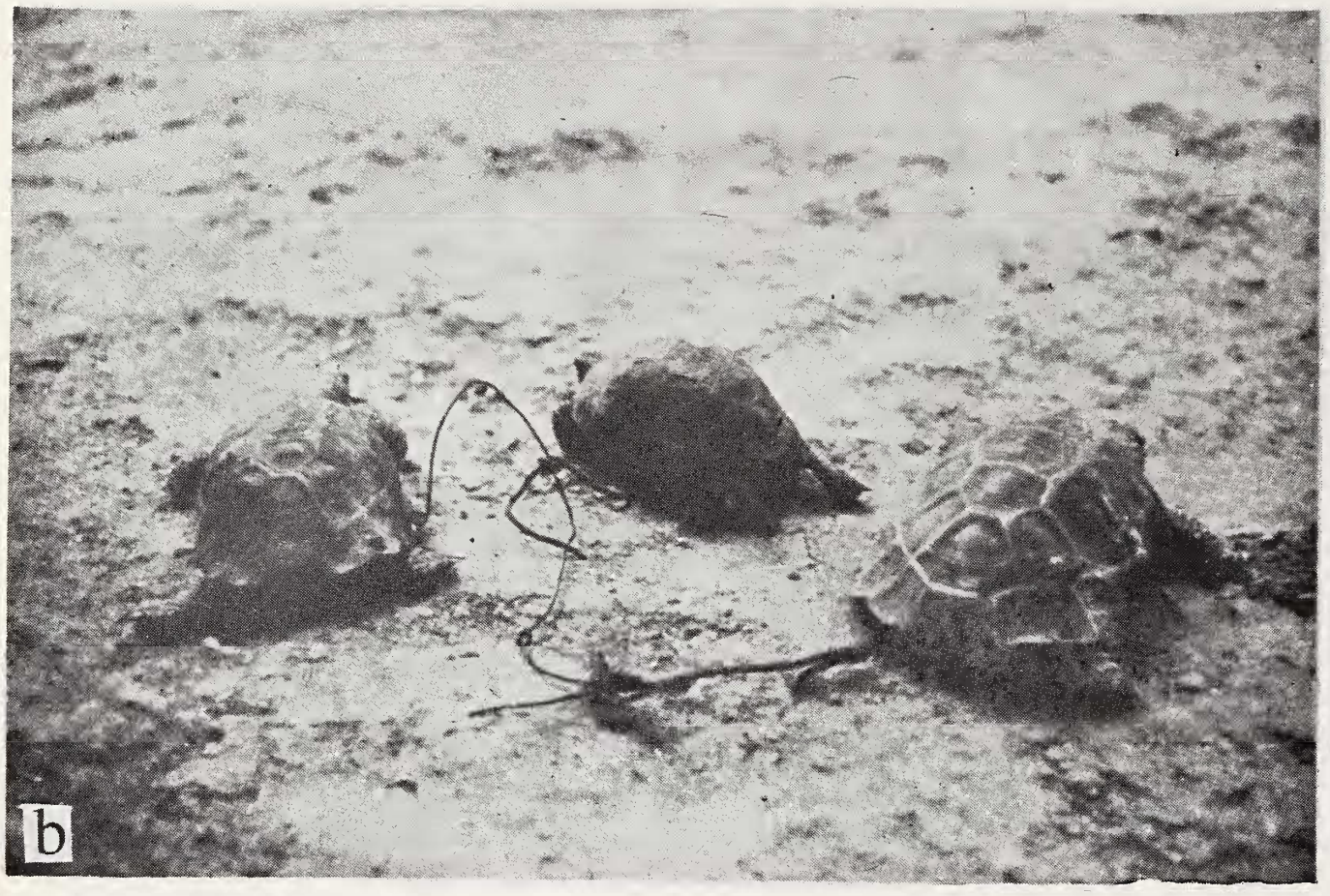
The known distribution of this species is Travancore hills of Kerala and Coorg of Karnataka (Smith 1931, Daniel 1983, Moll 1989, Das 1991). Even though the distribution of this species is known as Travancore hills and Coorg, precise locality records are scanty. Additional records of this species are Kothaiyar reserve forest, Peppara, Neyyar and Peechi wildlife sanctuaries. Updated and precise information on the distribution of the Travancore tortoise are given in Table 1.

**Status:** In all, 32 Travancore tortoises were recorded during the present survey of which seven were seen live in the wild and, 17 live tortoises and eight shells were found in various tribal settlements and forest villages (Table 2). Approximately 17 to 31 hours were spent in actual searching for tortoises in wild and in tribal settlements in each locality surveyed. A maximum of 12 tortoises were recorded in Kothaiyar reserve forests and more than one tortoise in all localities except Indira Gandhi wildlife sanctuary. The number of live tortoises or shells obtained per man hour work during field surveys were 0.04 in Kothaiyar reserve forest and Peechi-Vazhani wildlife sanctuary and 0.07 in Parambikulam wildlife sanctuary (Table 2). Even though, no wild tortoises were recorded in Peppara and Neyyar wildlife sanctuaries, the number of specimens obtained in tribal settlements were high (7 and 4 tortoises respectively). Travancore tortoises are assumed to be uncommon in these areas. Moll (1989) found this tortoise to be common to Chalakudi forests, adjacent to Parambikulam wildlife





a. Travancore tortoise, *Indotestudo forstenii*. b. Moist deciduous forests of the southern Western Ghats. These forests still hold fairly good populations of the Travancore tortoise.


a. A close view of the diurnal retreat of Travancore tortoise. b. Tortoises kept by the *Kani* tribals of the Western Ghats for future utilization.

TABLE 2
STATUS OF TRAVANCORE TORTOISE IN SOME PROTECTED AREAS OF THE WESTERN GHATS

| Details of information | Name of the Protected Areas | | | | | |
|---|---|---|---|---|---|---|
| | I | II | III | IV | V | VI |
| Tribal settlement survey | | | | | | |
| No. of settlements checked | 3 | 2 | 1 | 3 | 1 | 7 |
| Man hours search time | 10 | 10 | 1 | 3 | 1 | 15 |
| No. of tortoise shells obtained | 1 | 0 | 1 | 3 | 1 | 5 |
| No. of live tortoises seen | 7 | 4 | 0 | 1 | 0 | 5 |
| Field survey | | | | | | |
| No. of hours surveyed | 8 | 8 | 16 | 20 | 20 | 16 |
| No. of persons surveyed | 3 | 3 | 3 | 3 | 3 | 3 |
| No. of tortoises | 0 | 0 | 2 | 3 | - | 2 |
| Tortoise / man hour | - | - | 0.04 | 0.07 | - | 0.04 |

Note: I. Peppara Wildlife Sanctuary; II. Neyyar Wildlife Sanctuary; III. Peechi-Vazhani Wildlife Sanctuary; IV. Parambikulam Wildlife Sanctuary; V. Indira Gandhi Wildlife Sanctuary; VI. Kothaiyar Wildlife Sanctuary.

sanctuary (0.175 tortoise/ man hour work).

The Travancore tortoise has been recorded in ten sanctuaries, one Tiger Reserve and five reserve forests. The occurrence of the Travancore tortoise in many other protected areas of western ridges of the Western Ghats is not ruled out. The Protected Areas (i.e. sanctuary, national park and tiger reserve) in which the Travancore tortoises have been recorded cover a total area of about 3900 sq. km in addition to six reserve forests. The ecological habitat of tortoise (i.e. habitat with actual distribution of the tortoise) such as evergreen or semievergreen and moist deciduous forests is very small. Hence, improved protection in Protected Areas would certainly help in the survival of this species.

**Habitat:** The Travancore tortoise was recorded in a variety of forest types such as, moist deciduous (Plate 1b), semievergreen and rubber plantations at elevations 100-800 m above sea level. The tortoise utilized rock crevices (burrows) at ground level, cavities in fallen trees (Plate 2a), leaf litter and bushes as diurnal retreats (Table 3). The tortoises recorded during the present survey were mostly near water, i.e. 5 - 200 m (Table 3).

TABLE 3
HABITAT DESCRIPTION OF TRAVANCORE TORTOISE BASED ON WILD CAUGHT TORTOISES

| Locality | Habitat (forest type) | Micro-habitat | Elevation | Nearest water point |
|---|---|---|---|---|
| Kothaiyar RF | 1. Rubber plantation | Leaf litter | 100 m | 200 m |
| | 2. Moist deciduous | Fallen log | 400 m | 25 m |
| Peechi-Vazhani | 3. Moist deciduous | Rock crevices | 160 m | 50 m |
| | 4. Moist deciduous | Fallen log | 400 m | 1000 m |
| Parambikulam | 5. Moist deciduous | Bush & fallen twigs | 600 m | 100 m |
| | 6. Semievergreen | Bush | 600 m | 50 m |
| | 7. Moist deciduous | Crevices | 650 m | 5 m |

**Morphometry:** Seven tortoises were recorded in the wild and, 17 live tortoises and 8 shells in tribal settlements during the survey.